

# (12) UK Patent Application (19) GB (11) 2 169 700 A

(43) Application published 16 Jul 1986

(21) Application No 8526103

(22) Date of filing 23 Oct 1985

(30) Priority data

(31) 8501071

(32) 16 Jan 1985

(33) GB

(51) INT CL<sup>4</sup>

F24C 3/04

(52) Domestic classification (Edition H):

F4W 46A 46B 57

(56) Documents cited

GB A 2081885

(71) Applicant

Cannon Industries Limited (United Kingdom),  
Gough Road, Bilston, West Midlands WV14 8XR

(72) Inventor

Terrance David Rogers

(74) Agent and/or Address for Service

H V A Kirby,  
Central Patent Department (Wembley Office), The  
General Electric Company p l c, Hirst Research Centre,  
Wembley, Middlesex

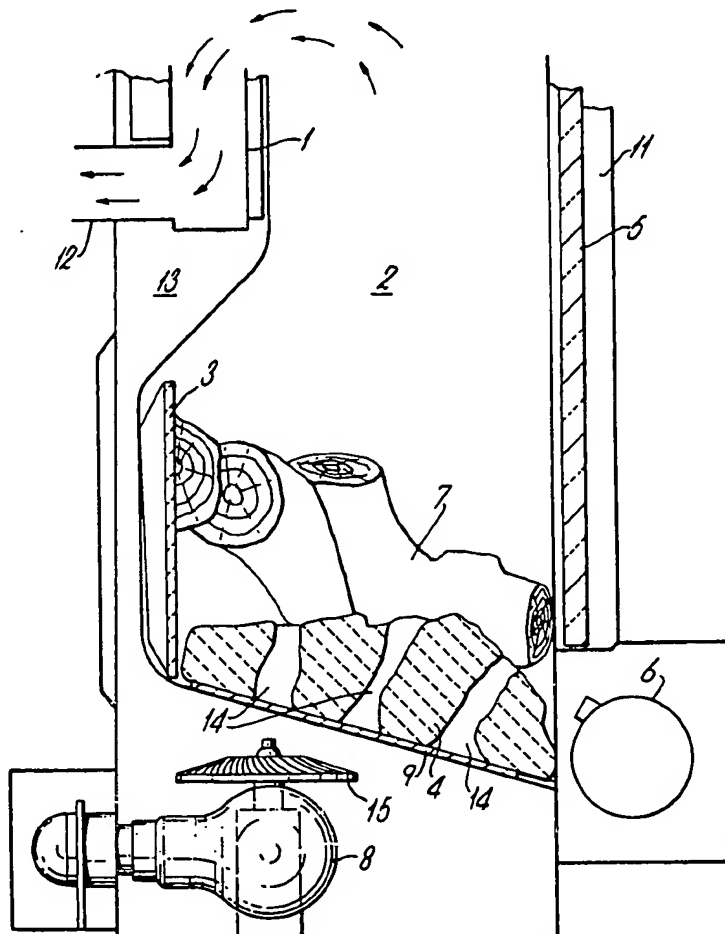
(58) Field of search

F4W

Selected US specifications from IPC sub-class F24C

## (54) Simulated solid-fuel gas fires

(57) A gas fire has a refractory base 4 with openings 14, elements 7 simulating solid fuel supported on the base, a burner 6 disposed so as to direct flames onto the upper surface of the base 4 and so that they pass upwards through apertures in or between the elements 7, and beneath the base 4 an electric lamp 8, the light from which passes through the openings 14 in the base 4 and illuminates the fuel elements 7 from below, helping to give the effect of the fire being alight even when the gas burner is not operating.



BEST AVAILABLE  
COPY

GB 2 169 700 A

the upper surface of the base and so that they pass through apertures in or between the element or elements, and at least one electric lamp located beneath the base so that when it is energised light from the lamp passes through the spaced openings in the base.

2. A free-flame gas fire according to Claim 1, wherein the lamp is arranged to be energised even when the gas burner is not operating.

3. A free-flame gas fire according to Claims 1 or 2, wherein means are provided for obtaining a flickering effect from the lamp.

4. A free-flame gas fire according to Claim 3, wherein the lamp is an incandescent filament lamp.

5. A free-flame gas fire according to Claim 4, wherein the flickering effect is achieved by means of a spinner assembly of known form disposed above the lamp and rotated by an upward current of air produced by the heating effect of the lamp.

6. A free-flame gas fire according to Claim 3, wherein the lamp is a discharge lamp of the kind having electrodes shaped and arranged so that an unstable mode discharge is produced in use of the lamp.

7. A free-flame gas fire according to Claim 4, including a control circuit for the lamp which in use causes the light from the lamp to vary at an appropriately rapid rate.

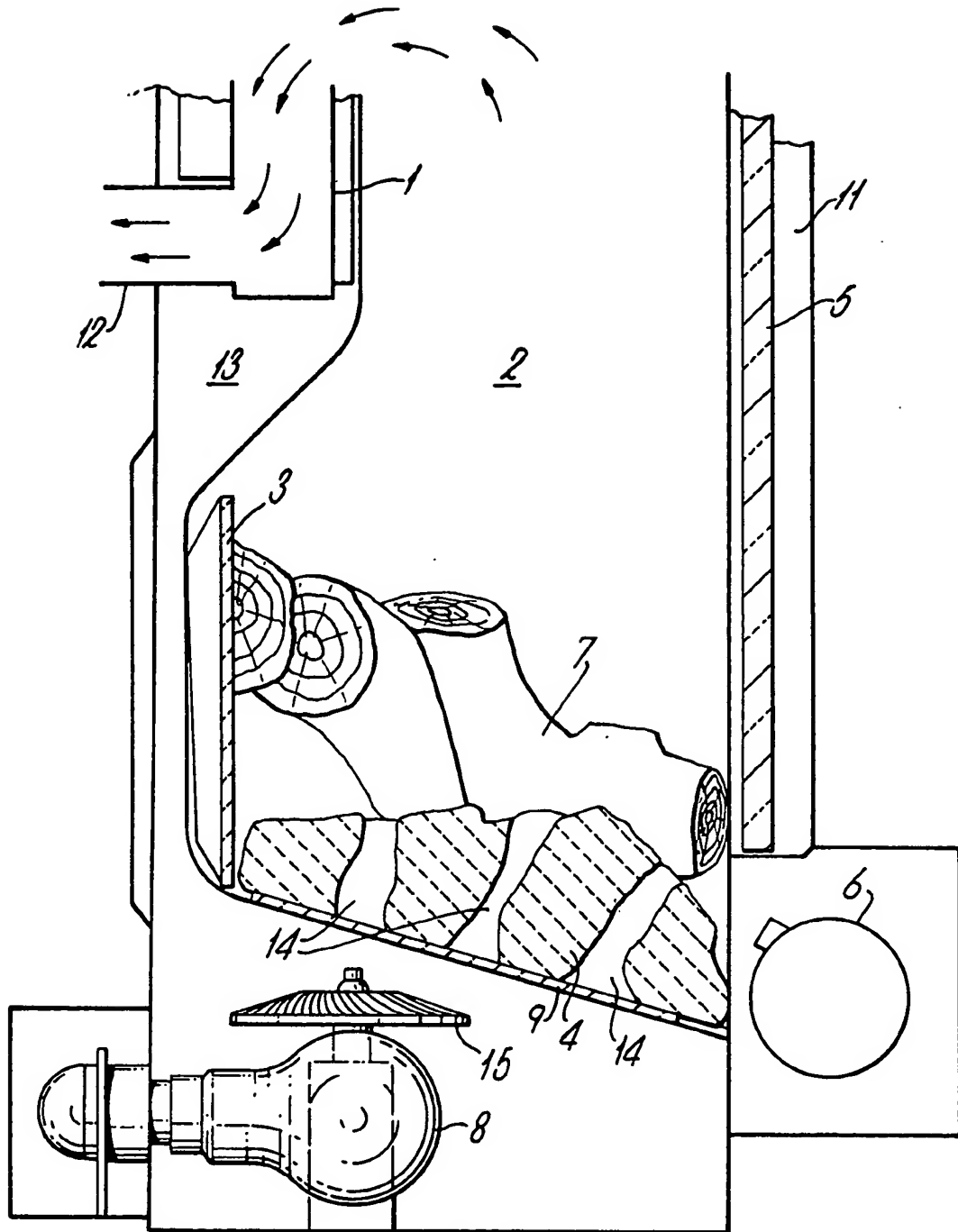
8. A free-flame gas fire according to any preceding claim, including a plurality of lamps.

9. A free-flame gas fire according to Claim 1, having an enclosed fire box within which the base, the fuel element or elements and the burner are located, and which has a transparent front wall through which the flames can be viewed.

10. A free-flame gas fire according to Claim 9, wherein the interior of the box communicates through a heat exchanger with a flue, the heat exchanger being located within a duct through which air is caused to circulate by convection, so that the air is heated by its passage past the heat exchanger and is arranged to be discharged into the room in which the fire is located.

11. A free-flame gas fire substantially as herein described with reference to the accompanying drawing.

1/1



## SPECIFICATION

### Gas fire

- 5 This invention relates to what are generally referred to as free-flame gas fires, that is to say fires of the kind in which flames produced by a combustible gas pass through apertures between refractory elements shaped to simulate solid fuel such as logs or coal, so as to give the effect of a real fire.

An object of the present invention is to provide a particularly attractive fire of this kind.

- According to the invention, a free-flame gas fire comprises a refractory base having a plurality of spaced openings and, above the base, one or more refractory elements shaped to simulate solid fuel, a burner disposed so as to direct flames on to the upper surface of the base and so that they pass through apertures in or between the element or elements, and an electric lamp located beneath the base so that when it is energised light from the lamp passes through the spaced openings in the base.

- In use of such a fire, light from the lamp will illuminate the simulated fuel element or elements from below helping to give the effect of the fire being alight. Moreover the lamp is preferably arranged to be energised even when the gas burner is not operating.

- Preferably also means are provided for obtaining a flickering effect from the lamp. In the case of an incandescent filament lamp this may be achieved by means of a spinner assembly of known kind disposed above the lamp and rotated by an upward current of air produced by the heating effect of the lamp.

- Alternatively the light from the lamp may be caused to vary at an appropriately rapid rate by means of a control circuit of any convenient kind, or the lamp may be a discharge lamp of the kind having electrodes shaped and arranged so that an unstable mode discharge is produced in use of the lamp. Other means of producing the flickering effect can alternatively be employed, and the fire can employ more than one lamp if desired.

- Preferably the fire has an enclosed fire box within which the base, the fuel element or elements and the burner are located, the fire box having a transparent front wall through which the flames can be viewed, and the interior of the box communicating through a heat exchanger with a flue, the heat exchanger being located within a duct through which air is caused to circulate by convection, so as to be heated by its passage past the heat exchanger, in use of the fire, and being arranged to be discharged into the room in which the fire is located.

- One fire in accordance with the invention will now be described by way of example with reference to the accompanying drawing

- 65 which represents a tri 1/7/05, EAST Version: 2.0.1.4d so as to direct flames on to

part of the fire in diagrammatic form.

- The gas fire comprises a heat exchanger located behind an enclosed fire box 2, the front wall of which is provided by a sheet 5 of heat resistant glass sealed around its edge to the casing 11 of the fire. At the rear of the fire box 2 there is located a ceramic back brick 3 and, to the front of this, an inclined ceramic base brick 4 over which flames from a burner 6, extending along the front of the fire box, are arranged to be directed, in use of the fire, so as to make the irregular upper surface of the base brick glow. Positioned on top of the base brick 4 is an additional ceramic log- or coal-effect burner 7 (shown in the drawing as a log effect burner), this having apertures through which the flames emerge to give the effect of a real log- or coal-burning fire.

- The products of combustion from both burners 6, 7 pass upwards within the fire box 2 and are directed from there through the heat exchanger and an outlet duct 12 into a flue, as indicated by the arrows. The heat exchanger 1 is located within a vertical passage 13 communicating at its lower end with an air inlet (not shown) and at its upper end with an air outlet (also not shown) so that, in use, air is drawn upwards through the passage by convection, as a result of the heating effect of the heat exchanger 1, and then, heated on its passage through the heat exchanger, is discharged back into the room in which the fire is located.

- In accordance with the invention a "Fire-glow" type lamp 8 is disposed centrally beneath the base brick 4, and the latter is provided with a series of holes 14, so that, when the lamp is energised, light passes through the holes in the base brick 4 and illuminates the inside of the fire box 2, as well as the underside of the ceramic log/coal burner 7, giving the effect of the fire being alight.

- To add to the realism, a spinner 15 of known kind is located above the lamp as shown, in order to give a flickering effect.

- To avoid the passage of air through the ceramic base brick 4 a sheet of borosilicate clear glass 9 extends across the underside of the base brick.

- 115 The illumination provided by the lamp 8 can be used with or without the gas being alight.

- In place of the spinner 15, other means of achieving a flickering effect may be employed. For example the lamp may be controlled by a solid state control circuit to cause the light output from the lamp to be varied repeatedly at an appropriate rate, which rate could also vary if desired.

### 125 CLAIMS

1. A free-flame gas fire comprising a refractory base having a plurality of spaced openings and, above the base, one or more refractory elements shaped to simulate solid fuel, a